

2014

Development of a Community-Based Lactation Support Program

Susan D. Bryant

Rhode Island College, sbryant_6649@ric.edu

Follow this and additional works at: http://digitalcommons.ric.edu/school_of_nursing

 Part of the [Maternal and Child Health Commons](#), [Maternal, Child Health and Neonatal Nursing Commons](#), [Public Health and Community Nursing Commons](#), and the [Public Health Education and Promotion Commons](#)

Recommended Citation

Bryant, Susan D., "Development of a Community-Based Lactation Support Program" (2014). *Master of Science in Nursing*. 37.
http://digitalcommons.ric.edu/school_of_nursing/37

This Masters is brought to you for free and open access by the Master's Theses, Dissertations, Graduate Research and Major Papers at Digital Commons @ RIC. It has been accepted for inclusion in Master of Science in Nursing by an authorized administrator of Digital Commons @ RIC. For more information, please contact kayton@ric.edu.

DEVELOPMENT OF A COMMUNITY-BASED LACTATION SUPPORT
PROGRAM

by

Susan D. Bryant

A Major Paper Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Master of Science in Nursing

in

The School of Nursing

Rhode Island College

2014

Abstract

Background. Despite the recommendations from leading health organizations and the documented health benefits for both mother and infant, breastfeeding success rates continue to be suboptimal.

Design. A program development design was used for this Community-Based Lactation Support Program. This pilot was the first step in accomplishing the long term goal of

expansion of the program to the entire community of Scituate and the state of Rhode Island.

Objectives. The objectives of this program were to increase exclusive and sustained breastfeeding rates in the town of Scituate through education and support and to ensure a positive breastfeeding experience for the breastfeeding family. The program was designed to enhance, not replace, existing breastfeeding support services and healthcare providers.

Method. The objectives were accomplished through individual support, education, and empowerment in the home environment using a public health nurse implemented program.

The pilot consisted of a program design utilizing the Precede/Proceed framework for: project promotion and recruitment; pre-natal interview and breastfeeding education; postpartum home visit; and follow-up phone assessments at one week, two weeks, one month, and three months after delivery.

Results. The four mothers who participated in the pilot reported an increase in confidence and knowledge and sustained, exclusive breastfeeding during follow-up phone assessments.

Table of Contents

Statement of Problem.....	1
Literature Review	5
Theoretical Framework	18
Program Development Methodology.....	25
Evaluation.....	53
Results.....	54
Summary and Conclusions.....	56
Implications for Advanced Nursing Practice.....	60
References.....	62
Appendices.....	68

Background/Statement of Problem

Despite the 2003 World Health Organization (WHO) recommendation for infants to be exclusively breastfed until six months of age and that breastfeeding continue to be an important part of the infant's diet until two years of age, breastfeeding rates continue to be low in many developed countries (WHO, 2013). The American Academy of Pediatrics (AAP) also recommends exclusive breastfeeding for six months, and continued breast milk feedings for the first year of life (2005). Evidence has shown that breastfeeding decreases an infant's risk of Sudden Infant Death Syndrome (SIDS), ear and respiratory infections, diarrhea, asthma, allergies, and a host of other acute and chronic diseases. Research has also shown a link between breastfeeding and the reduction of the risk of obesity and diabetes (American Academy of Pediatrics, 2005). An estimated \$13 billion dollars in pediatric healthcare costs could be saved each year if ninety percent of the population exclusively breastfed for the recommended minimum of 6 months (Bartick, 2010). In addition to benefits to the infant, the health benefits for the breastfeeding mother include a reduced risk of breast and ovarian cancer, diabetes, and postpartum depression. A possible link to the reduction of the risk of cardiovascular disease has also been demonstrated (AAP, 2005).

Because of these impressive health benefits for both the mother and child, the Healthy People 2020 Objectives (United States Department of Health and Human Services [USDHHS], 2011) include ambitious target rates for breastfeeding in order to improve the health of our nation. The national goals are to increase the rate: of having ever breastfed from 74% to 81.9%; of partial breastfeeding at 6 months from 43.5% to 60.6%; of exclusive breastfeeding at 3 months from 33.6% to 46.2%; and of exclusive breastfeeding at 6 months of age from 14.1% to 25.5% (USDHHS, 2011).

The Rhode Island (RI) data from the Centers for Disease Control and Prevention (CDC, 2013) revealed that 71% of women initiated breastfeeding. However, by 6 months of age, this number had decreased to 50% of infants who were still partially breastfed. Exclusive breastfeeding decreased to 42% at 3 months of age, and only 17% of at 6 months of age (CDC, 2013).

Breastfeeding initiation rates have improved significantly over the past ten years throughout the nation (CDC, 2013). Unfortunately, the sustained and exclusive breastfeeding rates continue to be low despite additional state and federal funding and an increase in breastfeeding acceptance and promotion. The Joint Commission (TJC) definition of exclusive breastfeeding is an infant “receiving only breast milk, and no other liquids or solids” and includes the infant “receiving breast milk via a bottle or other means beside the breast” (TJC, 2013).

In 2010, 71% of RI women initiated breastfeeding in the hospital, which is a slight decrease from the 2009 rate of 74%, below the national average of 77%, and below the Healthy People 2020 objective of 82% (CDC, 2013; USDHHS, 2010). A serious concern is the trend in RI, as well as nationwide, of breastfeeding rates continuing to decrease dramatically shortly after hospital discharge. The trend is demonstrated by rates of partial breastfeeding at 6 months in RI increasing from 38% to 50% in the past two years, which is above the national average of 49%, but still below the Healthy People 2020 goal of increasing mothers nursing at six months to 60% (CDC, 2013; USDHHS, 2010).

The Surgeon General’s Call to Action (2011) states that breastfeeding rates are lowest among new mothers who are poor and Black, but emphasizes that economics and ethnicity are not the only barriers to breastfeeding success. Lack of family support, low educational level, overall health, formula marketing campaigns, and workplace barriers

may all contribute to breastfeeding failure. According to Surgeon General Regina Benjamin:

One of the most highly effective preventive measures a mother can take to protect the health of her infant and herself is to breastfeed. By raising awareness, the success rate among mothers who want to breastfeed can be greatly improved through active support from their families, their friends and the community (USDHH, 2011 p. 23).

Surgeon General Benjamin further stressed that essential support in the community becomes the “lifeline for mothers with breastfeeding questions and issues” ((USDHH, 2011 p.45).

The impressive health benefits from breastfeeding for the infant and mother, as well as low sustained and exclusive breastfeeding statistics, have made the improvement in breastfeeding rates a state and national priority. They also provide concrete evidence that additional lactation support is imperative in order to accomplish this goal.

Insufficient and or ineffective community lactation education and support continues to be a major barrier to sustained and exclusive breastfeeding success. To highlight this issue, the 2013 World Breastfeeding Week’s theme “Breastfeeding Support: Close to Mothers” focused on the dramatic decline in breastfeeding rates after hospital discharge and emphasized the need for a strong community support system to prevent this significant decrease. The WHO stated that the key to continued breastfeeding success is support to the breastfeeding mother from her family and her community (2013). One of the most important factors contributing to low sustained and exclusive breastfeeding rates is the lack of effective community-based breastfeeding support in the critical and most vulnerable postpartum period. Mothers are usually discharged to home 24-48 hours after a vaginal birth, which is prior to the difficult and painful engorgement stage and also before the production of transitional breast milk. Mothers requiring a cesarean section

will usually be discharged home 3-4 days postoperatively, and are experiencing the same issues as the vaginal birth mothers, as well as recovering from major surgery. In most cases, the pediatrician will be their first contact after discharge, and proper breastfeeding support is usually not available or is inadequate.

Since breastfeeding initiation rates are consistently high in the hospital setting, the weakness in support most likely occurs after discharge. The development of a community-based lactation support program for this extremely vulnerable postpartum period will potentially maximize breastfeeding success through increasing maternal confidence. This increased confidence leads to an increase in sustained and exclusive breastfeeding rates and ultimately improving infant and maternal health outcomes.

Literature Review

A comprehensive literature review was conducted utilizing online databases including: local, state, and federal government websites, hospital websites, breastfeeding organization websites, LacMed, PubMed, and CINHALL. Key search words included: lactation consultant, infant nutrition, lactation, program development theories, breastfeeding, community lactation support, home visits, history of breastfeeding, peer counseling, centering pregnancy, and Baby Friendly.

Historical Context

In ancient times, the breast was held in high esteem, as it was valued as an object of adoration and of nourishment (Yalom, 1997). Breastfeeding has always been depicted in famous artwork and ancient artifacts. A fifteenth century drawing, “Madonna and Child,” portrays the Virgin Mary nursing the infant Jesus (Lawrence, 2005). In the early Egyptian, Greek, and Roman Empires, all women nursed their own children. Breastfeeding was later thought to be too common for the royal families so wet nurses

were hired to breastfeed. This practice was eventually adopted by the noble women as well (Schiebinger, 1993). At the end of the eighteenth century, the practice of wet nursing expanded from the rich only to include the poor. During the Industrial Revolution, lower income mothers were forced to seek employment and needed to utilize wet nurses, many of whom were destitute, unhealthy peasants (Stevens, 2009).

In response to the high infant mortality rates during the eighteenth century, European governments initiated campaigns against the practice of using wet nurses. Women were advised, and sometimes forced by enacted laws, to breastfeed. According to Schiebinger (1993), breast milk was thought to be a miracle fluid that could cure illness and produce wisdom. Many healers even used breast milk for healing of older children and adults. During this time period, an overwhelming majority of women in Europe and the United States (US) nursed their infants. Mother's milk was considered "best for babies" (Apple, 1987).

Starting in the mid 1800's, many attempts were made to develop an artificial substitute for breast milk. Researchers began on the analysis of the composition of breast milk, and, in 1865, the first infant formula was introduced first as a liquid and then as a powder for preservation. By 1883, there were 27 patented brands of infant food (Stevens, 2009). With the rise of commercial manufacturers, families and healthcare providers were led to believe that these artificial milk products were better than a mother's own breast milk. From the 1890's to the 1940's, there was a dramatic shift in infant feeding practices, and bottle feeding became more prevalent than breastfeeding (Apple, 1987). During this period however, infant mortality rates rose dramatically due to milk spoilage and improper handling and cleanliness of infant supplies (Wolf, 2013).

The first public health breastfeeding promotion began in the early 20th century as part of a US national campaign to lower infant mortality (Wolf, 2003). By the 1950's, the developed world prevailing belief was that only the lower class and uneducated mothers

breastfed. The majority of the population fully embraced the feeding of artificial infant formula. Aggressive marketing of formula companies furthered the global decline of breastfeeding (Stevens, 2009). From the 1930's to the early 1970s, breastfeeding rates in the US decreased, supplementation rates increased, and many mothers did not even initiate breastfeeding. By 1971, breastfeeding had reached its maximum low in the United States with only 24% of mothers initiating breastfeeding (Wolf, 2003). Later in the 1970s, the feminist-inspired women's health movement rekindled breastfeeding interest, but the breastfeeding rates continued to recede and surge over the next twenty years.

The second national public health breastfeeding campaign in the US began in the early 21st century and continues today (Wolf, 2003). The American Public Health Association (APHA) (2013) joined the AAP and the Surgeon General in updating their call for action, stating that breastfeeding rates continue to be below the Healthy People 2020 goals despite the medical recommendations and health benefits due to continued social, political, racial, geographic and economic barriers. In addition to increased health promotion efforts, federal and state laws exist which are designed to ensure a woman's right to breastfeed in public (RI Department of Health, 2013) and her right to return to work and maintain her milk supply (United States Breastfeeding Committee, 2011 & 2013). Slavit (2009) developed a step by step plan for breastfeeding in the workplace for employers to promote system-wide changes which allow women to sustain breastfeeding while working.

Benefits of Breastfeeding

According to Lawrence (2005), breast milk is recognized as the absolute best food for infants by health professionals and scientists throughout the world. Breast milk is the only food that is naturally designed to meet all of an infant's nutritional and immunological needs. It has disease-fighting antibodies that promote immune functioning which may lower risk of allergies, asthma, respiratory diseases, childhood

leukemia, lymphoma, and Hodgkin's Disease (2005). Breastfed infants also benefit from a decreased risk for ear infections, gastrointestinal tract infections, asthma, eczema, and a host of other acute and chronic diseases. Research has revealed that breastfeeding may decrease an infant's risk of sudden infant death syndrome (SIDS) and has also shown a link to the reduction of the risk of obesity and type 1 & 2 diabetes (AAP, 2005). Breast milk is known to have analgesic properties which can be beneficial during painful procedures and illnesses. An increase in cognitive and brain development has also been linked to breastfeeding. Preterm infants additionally benefit from a lower risk of necrotizing enterocolitis when fed breast milk (AAP, 2005; Lawrence, 2005). It is estimated that over 13 billion dollars in healthcare costs could be saved each year if 90% of the population exclusively breastfed for the recommended 6 months (Bartick, 2010).

The health benefits do not stop with the infant however. The breastfeeding mother benefits from a reduced risk of pre-menopausal breast and ovarian cancer, type 2 diabetes, osteoporosis, and postpartum depression. In addition, research demonstrates a potential link between breastfeeding and the reduction of the risk of cardiovascular disease (AAP, 2005). Society also benefits because breastfeeding does not leave a carbon footprint and is considered a renewable natural resource. Furthermore, successful breastfeeding promotes a strong mother-infant bond and a sense of empowerment and confidence which are foundations for healthy and strong families (Lawrence, 2005).

Barriers to Success

It is well documented that lack of knowledge, lactation issues, poor family and social support, social norms, embarrassment, employment and childcare issues, and inadequate health services are all potential barriers to breastfeeding success (APHA, 2013; USDHHS, 2011). In 1991, WHO and the United Nations Children's Fund (UNICEF) launched a global program called the Baby-Friendly Hospital Initiative (BFHI) to ensure that all birthing hospitals and centers became supporters of

breastfeeding. In August 1997, Baby-Friendly USA, Inc. was formed as the national authority for BFHI. The "*Ten Steps to Successful Breastfeeding*" are evidence-based practices developed by global experts that have been shown to increase breastfeeding initiation and duration. Baby-Friendly designated hospitals and birthing facilities must adhere to these steps in order to receive and retain this prestigious designation. The tenth step to increase breastfeeding initiation and duration is: "Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center" (Baby Friendly USA, 2013; USDHHS, 2011).

Loke (2013) conducted a descriptive, correlational study of postnatal women and reported that significant barriers to breastfeeding success are the lack of knowledge, skills, and confidence, not just of the mother and her family, but also of healthcare providers. Lack of quality breastfeeding support in the community, along with the funding and reimbursement necessary to provide these services, is another significant barrier. Social, educational, and economic factors, as well as language, also impact upon success rates. Other contributing factors to women's decisions to not continue breastfeeding are lack of previous breastfeeding experience, maternal age, and marital status (Loke, 2013). The absence of workplace support for adequate time to pump in order to maintain lactation can further interfere with sustained breastfeeding. Excessive media messaging and aggressive marketing of formula to the public, health care providers, and families continue to impede breastfeeding promotion efforts (United States Breastfeeding Committee, 2010).

Overcoming Breastfeeding Barriers

Centering Pregnancy is a model of care which uses a group format and may have implications for improving breastfeeding success. This model changes the traditional prenatal care from the examination room to the group setting for the majority of time.

According to Schindler (1998), the model combines three components of care, risk assessment, education, and support, into a group format. She found that that this environment promotes efficiency, enhances empowerment, and results in a shared power between the provider and the consumer. McNeil (2012) studied the Centering Pregnancy model of care through a study of group prenatal care in a maternity clinic in Calgary, Canada. He found that the women in the group setting experienced strong social support, their educational needs were met efficiently, and they gained a sense of empowerment not experienced with individual care. He concluded "this model of care could play a key role in addressing women's needs and improving health outcomes" (McNeil, 2012). While no studies were found that use this technique specifically for breastfeeding mothers, this framework has potential for providing education and support to breastfeeding mother.

A second strategy in the literature for decreasing barriers to breastfeeding is home-based peer counseling. In 1999, Morrow conducted the first community-based randomized controlled study to determine the effectiveness of home-based peer counseling on the exclusive breastfeeding rates among mother-infant dyads in Mexico City. The two intervention groups had either three or six prenatal and postpartum visits by peer counselors, and the control group had no peer counselor visits. The baseline factors were similar in each study group. Exclusive breastfeeding rates at three month postpartum were 67% for the six visit group, 50% for the three visit group, and 12% for the control group. The authors concluded that "early and repeated contact with peer counselors was associated with a significant increase in breastfeeding exclusivity and duration" (Morrow, 1999).

A study was conducted by Oakley (2014) to explore the association between various types of postnatal support and breastfeeding cessation. The author conducted a survey in England of 3840 women 16 years and older who delivered single term infants

in 2009 and breastfed. Previous research had shown that most women in England initiated breastfeeding, but approximately one third had stopped by six weeks postpartum, even though they had planned to nurse longer. The survey questionnaire was completed at around three months postnatally. As predicted, 30% of the women who initiated breastfeeding had stopped nursing by 10 days postpartum. Socio-demographic and prenatal feeding intention were all independently associated with breastfeeding cessation at ten days and six weeks. However, a strong association was also found for women who did not receive feeding advice or support from a parent or peer support group, voluntary organization, or breastfeeding clinic, and breastfeeding cessation by 10 days postpartum. Oakley further noted that perceived support and encouragement from midwives was associated with lower rates of breastfeeding cessation at both 10 days and 6 weeks. The survey analysis estimated that 34-59% of the breastfeeding cessations by 10 days "could have been avoided if more women in the study population received breastfeeding support" (Oakley, 2014, p. 5).

In 2010, Chapman, Morel, Anderson, Damio, and Perez-Escamilla conducted a systematic review of randomized trials that studied the effectiveness of peer counseling for improving breastfeeding initiation, duration, and exclusivity rates, as well as maternal and infant health outcomes. This systematic review concluded that "Breastfeeding peer counseling initiatives are effective and can be scaled up in both developed and developing countries as part of well-coordinated national breastfeeding promotion or maternal-child health programs" (Chapman, 2010, p.10).

A Cochrane Database systematic review included 56,451 mother-infant dyads from 52 randomized or quasi-randomized controlled studies from 21 countries (Renfrew, 2012). These studies compared healthy breastfeeding mothers and healthy term infants who received extra lactation support with breastfeeding mothers who received the usual maternity care. The systematic review revealed that all forms of extra support, from both

professional and lay people, significantly increased the duration of both partial and exclusive breastfeeding rates and decreased the cessation of breastfeeding prior to six months. The authors concluded that all women should be offered lactation support by professional and lay/peer supporters in order to increase the duration and exclusivity of breastfeeding. Face-to-face support was found to be more effective than telephonic, and reactive support was found to be ineffective since it relies on the mother to initiate contact. The author also recommended that ongoing and scheduled lactation visits should be offered so that the mother can rely on the support being available (Renfrew, 2012).

A number of studies included in the Cochrane review (2012) and the Chapman (2010) systematic review with particular relevance to this program development project will be included. The first, an experimental study, demonstrated mixed results for a hospital and/or home visit intervention. A randomized, controlled trial in two low income community health centers provided individual prenatal and postnatal lactation consultant intervention in order to determine effectiveness in increasing duration of breastfeeding. The research included prenatal interviews by a study lactation consultant and collected data on demographics and breastfeeding experience, intention, and knowledge. The intervention group of 145 participants received hospital and/or home visits and telephone follow-up. The control group of 159 participants received standard maternity care. Postpartum interviews were conducted with both groups at 1, 2, 3, 4, 6, 8, 10, and 12 months after delivery to collect data on feeding patterns, infant illness, and infant health care use. The results of this study revealed that the control group experienced significantly lower breastfeeding intensity and confidence levels at both thirteen and fifty-two weeks. However, no significant difference in exclusive breastfeeding rates was found. The researchers concluded that home visits and telephone follow-up was effective in increasing breastfeeding duration, but did not increase exclusive breastfeeding rates (Bonuck, 2005).

Another study analyzed the difference between a home visit and clinic visit in relation to impact on breastfeeding frequency and infant weight gain (Gagnona, 2002). A randomized, controlled trial with 586 healthy mother-infant dyads was conducted at a university teaching hospital and affiliated community health centers over a 21 month period. The research investigated variation in breastfeeding frequency or infant weight gain for women who received a community nurse home visit as compared with hospital nurse clinic follow-up when discharged less than 36 hours after delivery. The researchers concluded that follow-up by nurses, either in the home or in a hospital clinic, after an early postpartum discharge is associated with satisfactory breastfeeding outcomes (Gagnona, 2002).

A community based, randomized clinical trial was conducted with 41 mothers who delivered healthy, full term singletons. This study compared low income mothers who received the usual maternity care (control group), with low income mothers who additionally received home visits and telephonic support by a community health nurse/peer counselor team for six months postpartum (intervention group). The study demonstrated that the women who received the community health intervention with support from a health nurse/peer counselor team breastfed significantly longer than the control group, and that the infants were healthier. The authors concluded that community lactation support can increase breastfeeding duration and has the potential to decrease healthcare costs (Pugh, 2002).

Another study of women of low socioeconomic status assessed the efficacy of peer counseling to promote exclusive breastfeeding among low-income inner-city women in Hartford, Connecticut (Anderson, 2005). The intervention group received exclusive breastfeeding peer counseling support with three prenatal home visits, daily hospital visits after delivery, nine postpartum home visits, and telephone counseling as needed for a total of three months postpartum. The control group received conventional

breastfeeding support with peer counselors for three months postpartum. Nonexclusive breastfeeding in the first 3 months was found to be more likely in the control group as compared with the intervention group (99% compared with 79%, respectively). The researchers concluded that well structured and intensive breastfeeding support provided by knowledgeable hospital and community based peer counselors was effective in improving exclusive breastfeeding rates (Anderson, 2005).

Finally, an international study of women in Turkey evaluated home support after hospital discharge and its impact on breastfeeding knowledge, duration, and exclusivity (Aksu, 2011). In this study, all women received the standard breastfeeding education and support provided by a Baby Friendly Initiative Hospital (BFHI) in Turkey. The intervention group of 60 women additionally received breastfeeding education and support at home on day three postpartum. The intervention group had a significant increase in the percentage of exclusive breastfeeding rates at both two and six weeks, as well as at six months postpartum. The total breastfeeding duration rates and breastfeeding knowledge scores were also increased in the intervention group. The researchers concluded that breastfeeding education and support offered in the home environment at day three postpartum was effective in increasing breastfeeding knowledge, duration, and exclusivity (Aksu, 2011).

Efforts to Improve Rates

Infant nutrition has always been an important public health issue, but now breastfeeding is finally in the forefront. Currently there are extensive campaigns to increase breastfeeding rates. WHO (2013) and UNICEF (2013) have active efforts worldwide. Nationally, the CDC (2013), the Surgeon General (2011), the AAP (2005), the APHA (2013), and the USDHHS (2011) have produced strong statements promoting breastfeeding. The Healthy People 2020 (2010) document has listed improving breastfeeding rates as a national objective. Surgeon General Benjamin stated in the 2011 “Call to Action” that breastfeeding is the most effective way for a mother to protect her health and the health of her infant. "By raising awareness, the success rate among mothers who want to breastfeed can be greatly improved through active support from their families, their friends and the community" (USDHHS, 2011, p.45).

In addition, under the provisions of the Patient Protection and Affordable Care Act that went into effective on August 1, 2012, health insurance plans are now required to cover certain preventative services that include breastfeeding support, supplies, and counseling services (United States Breastfeeding Committee, 2013). Recent changes in the Medicaid reimbursement policies have further incited state programs and hospital organizations to focus on improving exclusive breastfeeding rates (RI Department of Health, 2013). Accreditation has also been linked to the institution of evidence-based breastfeeding initiatives. New Joint Commission (TJC, 2013) quality measurement tools for maternity hospitals and the Baby-Friendly Designation process (Breastfeeding USA, 2013) have catapulted breastfeeding into the forefront of quality assurance focus for maternal child healthcare institutions.

In summary, the literature and health experts illustrate the overwhelming importance of breastfeeding to the health of our world, nation, and state. Despite the promotional and funding efforts, breastfeeding success rates continue to be suboptimal.

Proactive interventions to increase a woman's breastfeeding knowledge, confidence, and skills are essential for improvement. The presence of community-based support, both prenatally and in the crucial early postpartum period, has proven very effective in increasing exclusive and sustained breastfeeding rates.

Theoretical Framework

The framework used to guide and develop this proposed Community-Based Lactation Program was the Precede-Proceed Model of Health Program Planning and Evaluation, by Dr. Lawrence W. Green (1999). Green's original Precede model (1999) is a participatory model used to create successful community health promotion and interventions in public health. This model provides a framework for efficient program design and analysis by health program planners, policy makers, and program evaluators. The planning framework is based on two fundamental principles: that health and health

risks are caused by multiple factors; and that the social, environmental and behavioral efforts to produce change must be multi-dimensional and participatory (Green, 1999).

The subsequent Precede-Proceed model expands Green's original model and provides a systematic approach to community health problem-solving using the principles of planning, organizing, implementing, and evaluating to build an effective community health education program (Green, 2005). Green further states that using this framework will help to explain health related behaviors and environments in order to design and evaluate appropriate interventions to influence those behaviors and environments (2005).

The Precede-Proceed Model is founded on the disciplines of epidemiology, the social, behavioral, and educational sciences, and health administration. Precede and Proceed are both acronyms. PRECEDE (Predisposing, Reinforcing, and Enabling Constructs in Educational /Environmental Diagnosis and Evaluation) represents the process leading up to an intervention, and PROCEED (Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development) represents how to proceed with the intervention (KU Work Group for Community and Health Development [KU], 2014). The Precede-Proceed model provides an effective framework for the identification, planning, implementation, and evaluation of community and public health initiatives and interventions. According to Green (2005), in the existing healthcare environment with increased healthcare needs, limited resources, and growing community expectations, adopting the Precede-Proceed model can facilitate the development of the most effective, realistic and relevant health interventions.

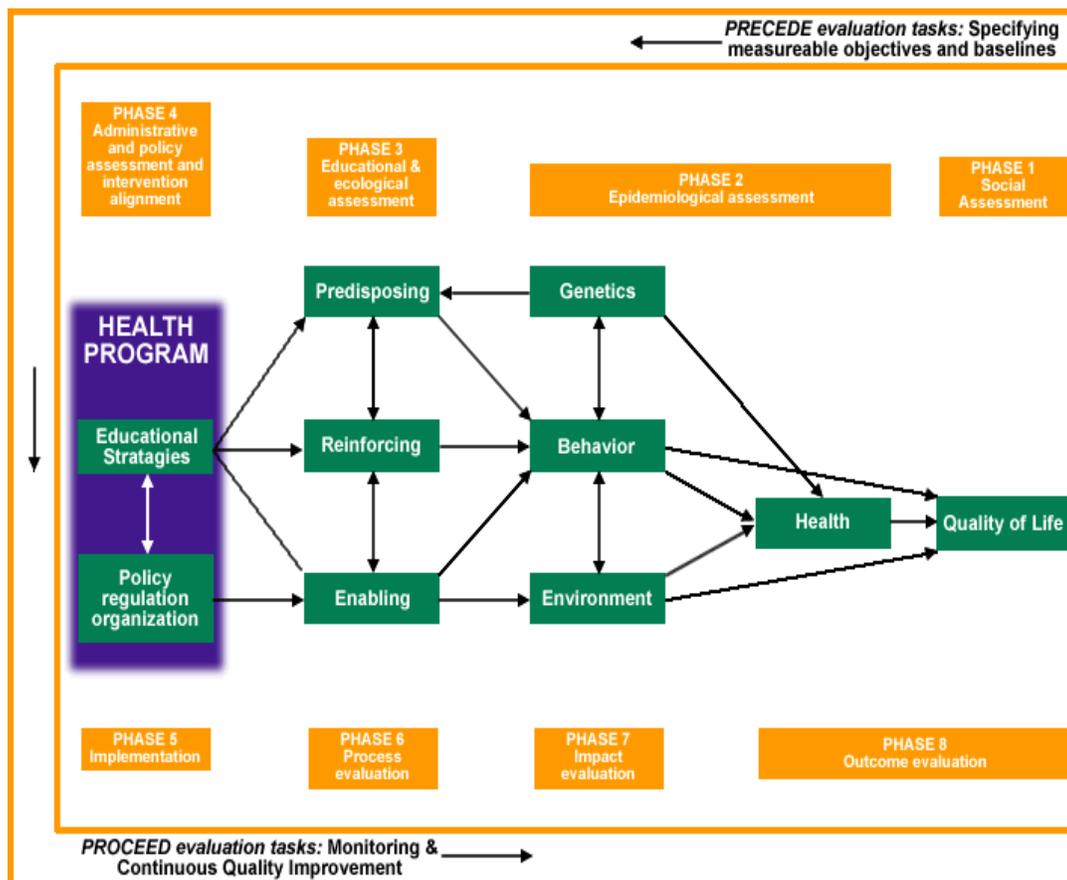


Figure 1. Precede-Proceed Model (Green, 2005; KU Work Group for Community Health and Development, 2014). This figure depicts the use of the Precede-Proceed Model in the development of a health program.

Utilizing the Precede-Proceed Model as the framework, the following process was implemented to develop a community-based lactation program. Use of the model required a deductive approach using the eight phases described by Green (2005) seen in Figure 1. The Precede part of the framework has four phases and is the diagnostic portion of the model. It begins with the belief that the focus of change must be on the desired outcome, and then moves backward to develop the intervention (KU, 2014).

Phase 1: Social Assessment

The breastfeeding goals and objectives set by the WHO, Baby Friendly USA, Healthy People 2020, the Surgeon General, as well as the RI Department of Health,

emphasized the need for change in our present health care practices with more emphasis on community support. After a comprehensive needs assessment of the community of Scituate, RI, discussion with members of the Scituate Health Care Alliance, and engagement with residents of the community, it was determined that a local lactation program was desired and necessary to increase sustained and exclusive breastfeeding.

Phase 2: Epidemiological Assessment

A behavioral and environmental assessment (physical, social, political, and economic) of determinants/factors that affect the community and its quality of life (Green, 2005) are required to understand the epidemiological extent of the issue. The most recent statistics from the CDC revealed that the state of RI has the lowest breastfeeding average rates in New England and also is below the national average (CDC, 2013). Although Scituate's rates are above the Rhode Island rates, they are still below the Healthy People 2020 targets.

Phase 3: Educational and Organizational Assessment

The health priority for this project was determined to be an increase in breastfeeding knowledge and confidence. The project objectives were to recruit pregnant women from the community of Scituate, RI who were interested in increasing their breastfeeding knowledge and confidence with the goal of improving breastfeeding success rates over a three month postpartum period.

The predisposing factors that affect a woman's ability to successfully breastfeed include: her breastfeeding knowledge and/or prior experience; prior breast surgery/health; her attitude about breastfeeding, her cultural/religious beliefs; her values; and her confidence level (USDHHS, 2013). The enabling factors are the internal and external conditions directly related to the issue of breastfeeding. The availability and accessibility of breastfeeding resources and services for Scituate residents were limited to private obstetrical practices, delivery hospitals, and Women Infant Children (WIC) sites, all in

other towns. Federal and state laws protect the woman's right to breastfeeding in public space, and require employers to support breastfeeding in the workplace by providing time and an appropriate place to pump or nurse. The reinforcing factors for breastfeeding success include the attitudes of the woman's influential people such as family members, friends, employers, and healthcare providers as well as legal and regulatory infrastructure.

Phase 4: Administrative and Policy Assessment

Administrative issues that needed to be factored into the program development included the time constraints of the pilot project and the availability of women in the third trimester of pregnancy. The Scituate Health Alliance's support of the lactation program pilot was employed as a means of building community ownership, leading to more community support and a greater chance for confidence and success (KU, 2014).

The Proceed section of this framework also has four phases and is the treatment portion of this theoretical model. It involves the implementation of interventions and the evaluation process.

Phase 5: Implementation

The community lactation program design and interventions created a comfortable, positive, and empowering environment for assessment and learning. Prior to delivery, a home visit was provided for an assessment interview and a short breastfeeding educational program. This afforded the opportunity to establish a relationship and increase the mother's breastfeeding knowledge. A postpartum visit included a maternal and infant assessment, as well as a breastfeeding assessment if the infant was ready to feed. The mother was encouraged to contact the researcher with any breastfeeding questions or concerns as often as necessary. In addition, the researcher provided phone contact for support and education at a minimum of one week, two weeks, one month, and three months post hospital discharge. The researcher being a fellow Scituate resident

created an immediate bond and promoted the establishment of credibility and trust. Each mother expressed appreciation of the individualized attention and education.

Phase 6: Process Evaluation

The community lactation program development procedure was followed according to the community lactation program proposal. After IRB approval, recruitment flyers were distributed throughout the town of Scituate and a message was posted on the Scituate B.A.B.I.E.S (Baby and Breastfeeding Information Education Support) Facebook site. In two instances, the initial interview, assessment and prenatal teaching had to be combined with the postpartum home visit due to the timing of the recruitment in relation to the participant's delivery.

Phase 7: Impact Evaluation

The interventions utilized in the community lactation program could not be assessed for long term impact because of the nature of the pilot, but were effective on a small scale and in the short term in impacting the desired population. The initial pilot project reached a small sample of four women interested breastfeeding, but the time constraint required to fulfill the elements of the program limited the potential sample. The breastfeeding success rate of the pilot project was very high.

Phase 8: Outcome evaluation

Evaluating the outcomes of the program is critical to assure that the process has an effect on the targeted health issue, in this case sustained and exclusive breastfeeding. The pilot intervention utilized in the community lactation program was, in fact, extremely effective in promoting sustained breastfeeding, with all of the mother-infant dyads continuing breastfeeding at the final evaluation at 12 weeks post-partum. Two of the four mothers in particular would possibly have stopped breastfeeding without the educational intervention. One of the mothers required surgery and was given misinformation from providers without expertise in this area who advised cessation due to anesthesia. The

second perceived that her pediatrician was encouraging her to use formula because the breastfeeding was not enough and also experienced engorgement, both of which may have led to cessation.

Program Development Methodology

Needs Assessment of Breastfeeding Resources in Rhode Island

The Rhode Island Department of Health (RIDOH) is presently spearheading statewide participation in the Baby-Friendly Hospital Initiative (BFHI) process. This initiative encourages hospitals to provide an optimal level of care for breastfeeding and recognizes those who attain this with the distinguished BFHI designation. Presently, Newport and South County Hospitals have earned this distinction in Rhode Island, and Women and Infants and Kent Hospital are in the process of applying (RIDOH, 2013). Baby-Friendly USA, Inc. is the accrediting body for the this initiative in the US (Breastfeeding USA, 2013)

Women and Infants Hospital provides International Board Certified Lactation Consultants (IBCLC) for breastfeeding services with a physician or nursing referral while the mother is hospitalized. WIC also provides additional IBCLC coverage at Women and Infants on a part time basis. RItE Care families and United Health Care Plan participants who plan to breastfeed are also provided with an electric breast pump, free of charge, with a physician's prescription. Women and Infants Hospital has a Warm Line phone program staffed by IBCLC nurses that provide postpartum and breastfeeding support services 7 days a week. The Warm Line staff also "round" on all the postpartum mothers to introduce the service and develop a discharge plan. This service then provides a phone call to all postpartum mothers within 48 hours of discharge. The Warm Line can also schedule outpatient lactation visits at the hospital if necessary (Women and Infants, 2013).

Kent Hospital offers a comprehensive lactation program through the Women's Care Center. All breastfeeding mothers have lactation consultations from an IBCLC who is a registered nurse and from a WIC IBCLC while in-patient, and can be seen on an out-patient basis for additional lactation support. The lactation program also provides follow-

up phone support, prenatal breastfeeding classes, and a weekly mother's support group (Kent Hospital, 2013). Similar lactation programs are available at South County Hospital, Newport Hospital, Landmark Hospital, and Memorial Hospital of RI.

Rhode Island has 25 WIC agencies with WIC Peer Counselors available for each agency statewide (RIDOH, 2013). According to the USDA Food and Nutrition Service (2011), the WIC agency's mission is the "safeguarding of the health of low income women, infants, and children" and has made breastfeeding support and promotion a program priority. This government agency claims that WIC participants' breastfeeding rates are steadily increasing, but the rates are still far below the national average and the Healthy People 2020 objectives. RI had only a 15% breastfeeding rate among the population of women using WIC with only a 5.3% exclusive breastfeeding rate (USDA Food and Nutrition Service, 2013). Rhode Island provides evidence-based home visits for pregnant woman, infants, and families through federal funding from the Affordable Care Act's Maternal Infant and Early Childhood Home Visiting Program. Statewide short and long term programs for pregnant women and children from birth to age three are also available through First Connections, Healthy Families America, and the Nurse Family Partnership (RIDOH, 2013).

Many breastfeeding resources in Rhode Island are available for mothers, families and healthcare providers to access. The RIDOH (2013) provides current and comprehensive breastfeeding information and resources online and telephonically. It also provides the Family Health Information Line for bilingual breastfeeding answers and referrals to resources, and Women, Infants & Children (WIC) for breastfeeding promotion and support to vulnerable populations.

Additionally, the La Leche League International provides telephonic and group support from lactation consultants and breastfeeding mothers (La Leche, 2013). Another group, Healthy Babies, Happy Moms, provides lactation consultant support,

informational classes, a support group, and breastfeeding products/supplies (Healthy Babies, 2013) Lastly, the RI New Moms Connection offers a pregnancy and mother's support group to a limited geographic area (RI Moms, 2013). Presently, none of these resources provide lactation support in the home environment.

Assessment of Breastfeeding Programs Regionally and Nationally

In preparation for the pilot project, a select group of community-based lactation programs were surveyed. The Breast Feeding Project is a community-based lactation program that provides women in the Central Florida area with high quality and evidence-based breastfeeding education and support that focuses on confidence and empowerment (Breastfeeding Project, 2013). Established and highly effective outpatient lactation programs were also investigated in Massachusetts at Melrose-Wakefield Hospital (Hallmark Health, 2013) and Cape Cod Hospital (Cape Cod Hospital, 2013).

Providence/Saint Vincent's Hospital in Oregon (Oregon Providence, 2013) and Hartford Hospital (Hartford Hospital, 2013) in Connecticut were also reviewed. Based on the support and success of programs already available in the community, as well as the previously cited statements from the Surgeon General, the AAP, and the US Breastfeeding Committee, it is evident that a community-based lactation support program can be a highly effective way to provide assistance from the lactation consultant as well as from other nursing mothers.

Community Assessment of Scituate, Rhode Island

The Town of Scituate, in Providence County, is located in the northwestern region of Rhode Island and borders the towns of Johnston, Smithfield, Cranston, Gloucester, Foster, West Warwick, and Coventry. The total land area of Scituate is 48.7 square miles with an additional 6.1 square miles of water. Approximately 14,800 acres of town land is now reservoir property, owned by the City of Providence and the Providence Water

Supply Board, which produces 70% of the water for the state of RI (Scituate, 2013). According to the 2010 Census, the total population of Scituate is 10,329 with 8,409 residents in rural environments and 1920 residents in more urban environments (Census, 2010). The population density in Scituate is very low, approximately 223 people per square mile, with total acreage of approximately 35,000 (Citydata, 2010). The average median resident age is presently 45.2 years with 50.9% females and 49.1% males (Census, 2010). Scituate does not have a racially diverse population, but does have diversity of income level. Almost 98% of the town is White, but approximately 17% have incomes in the lower socioeconomic status as seen in Tables 1 and 2.

<u>Table 1</u>	
<u>Racial and Ethnic Composition of Scituate, RI</u>	
<u>Race/Ethnicity</u>	<u>Percentage of population Scituate, RI</u>
White	97.8%
Hispanic	1.2%
Asian	0.7%
Two or more races	0.6%
Black	0.4%
Other	0.1%
(Census, 2010)	
<u>Table 2</u>	
<u>Income Composition of Scituate, RI</u>	
<u>Income</u>	<u>Percentage of population Scituate, RI</u>

Less than \$25,000	16.8%
\$25,000-\$74,999	33.5%
\$75,000-99,000	16.4%
\$100,000-\$149,000	20.2%
\$150,000 or higher	13.0%
(Census, 2010)	

Health and related resources in the town include two food “closets,” one senior center, and an early learning center. The school district in town has three school nurses and a Wellness Committee made up of teachers, students, administrators, and community volunteers. Scituate is primarily a healthy rural community, but its health resources are obtainable through a vast and sometimes distant network of providers. RI DOH (2013) data revealed that the children of Scituate were seen by over one hundred and twenty different pediatric or primary care practices throughout the state. The data also revealed that seven different WIC programs were accessed by approximately 21% of Scituate families. In 2012, 6% of Scituate children received free or reduced lunches, and 8% of children less than three years old received early intervention services (Kidscount, 2013).

The RI DOH (2013) funds the First Connections program, which provides free, voluntary home visits to families with infants and children up to 3 years of age. Scituate residents can access this program through Family Resources Community Action. According to Kidsnet (2013), First Connections was accessed by 36.3% of mother's who delivered babies in 2013, and home visits were provided to 50% of newborns in Scituate.

In 2013, 83% of Scituate newborns were breastfed at least initially which is above the Healthy People 2020 target goal of 82% and above the Scituate breastfeeding initiation rate of 59.7% in 2011. Also, 82% of pregnant women in the town sought prenatal care within the first trimester of pregnancy which is also above the Healthy People 2020 objective of 78%. Scituate had four documented preterm births (less than

37 weeks gestation) in 2013 which was 6% of total births and below the Healthy People target objective of 11% (RI Kidsnet 2013; Healthy People, 2010).

A unique resource in the town is the Scituate Health Alliance (SHA). It is a non-profit organization with a mission to “create a healthy community through local, affordable, accessible health care” (Scituate Health, 2013). Ultimately, the goal of the alliance is to develop a healthcare system founded on population-based primary care which is the utilization of population based data and principles for community level interventions (Ibrahim, 2001). They provide the majority of the health services to the community of Scituate. To date, two programs have been established, Scituate Health Access and Scituate Health Dental Programs, which provide health and dental access for low to moderate income Scituate residents who do not have health or dental insurance. In 2012, the SHA provided vouchers for primary medical and dental care to more than 250 residents. It also provided multiple community wide influenza vaccination clinics, health screenings, educational programs, and senior outreach.

Scituate B.A.B.I.E.S (Baby and Breastfeeding Information Education Support) is another program developed through the Scituate Health Alliance to provide educational, health, and social support to pregnant and postpartum women. Scituate Babies offers Childbirth and Breastfeeding Education programs and has the goal of expanding this program to provide home visits and support groups for new mothers and newborns (ScituateHealth, 2013). Long term goals include expansion of the breastfeeding program piloted in this program planning intervention.

Based upon a community assessment of the town of Scituate, a breastfeeding program intervention was designed with the goal of expanding the maternal child services of the SHA. These services would incorporate home care visits and lactation support for mothers and newborns. Scituate, RI is already a pioneer in health care innovation with the vision of a population based primary care program. With proper funding, promotion,

planning and implementation, this community could meet and potentially surpass the Healthy People 2020 objectives.

Program Implementation

Purpose.

The purpose of this project was to develop and implement a community-based lactation support program with the goal of increasing the exclusive breastfeeding rates in the town of Scituate RI.

Design.

The pilot consisted of a program development design utilizing the Precede/Proceed Model for project promotion and recruitment, pre-natal interview and breastfeeding education, postpartum home visit, and follow-up phone assessments at one week, two weeks, one month and three months after delivery.

Participants and sample.

This program recruited pregnant women from the community of Scituate, RI to participate in a pilot project. Informational flyers were distributed at the Scituate libraries, elementary schools, and daycare locations. The Scituate Health Alliance website and Scituate B.A.B.I.E.S Facebook page was also utilized to disseminate information and seek participants. Four women were enrolled in the pilot, and all completed it.

Site.

This project was implemented at the participants' homes. The Scituate Health Alliance office, located at the Scituate Ambulance & Rescue Company 1003 Danielson Pike, North Scituate, was also offered as an alternative site if the participant was uncomfortable with a home visit. All chose their homes for the setting of the pilot.

Procedures.

The researcher, a maternal/child health registered nurse and an International Board Certified Lactation Consultant (IBCLC), conducted this pilot project in collaboration with the Scituate Health Alliance. The pilot project consisted of four components:

1. Project promotion and recruitment
2. Prenatal interview and breastfeeding education overview
3. Postpartum home visit which took place one to two days after discharge and was prompted by the participant notifying the researcher that the birth had occurred
4. Follow-up phone contacts which were made at one week, two weeks, one month, and three months after delivery

The Scituate Health Alliance supported this pilot project. The letter of agreement is provided (Appendix A). The Informational Letter was provided and consent obtained for both the mother and infant's participation for each dyad (Appendices B, C, D). The mother was told verbally and in writing that participation was voluntary and that there would be no consequence for choosing to not participate. The breastfeeding education was implemented following the completion of the Prenatal Interview, according to the Breastfeeding Education Teaching Plan. A description of the breastfeeding education is provided in Table 3 including objectives, content, method, and evaluation which was used for each participant. The interview, assessment, breastfeeding education, and follow-up phone support (Appendix E) was consistent with the content provided by the Baby Friendly Hospital Initiative (Baby Friendly USA, 2013).

Table 3 Breastfeeding Education Teaching Plan			
Objectives	Content	Method	Evaluation
The participant will:			

State how breastfeeding works	Benefits of breastfeeding for mom and baby; how the body makes milk; special situations	Discussion; breastfeeding booklet & video presentation	Discussion with further evaluation occurring at postpartum home visit
Identify proper latching on & positioning techniques	Proper positioning of mother and infant; appropriate latching on to nipple; hand expression	Demonstration on breast model; discussion; breastfeeding booklet, PowerPoint presentation	Discussion return demonstration on breast model; further evaluation occurring at postpartum home visit
State when to feed infant	Infant hunger cues; rousing techniques; calming techniques; avoidance of pacifiers and bottles	Discussion; breastfeeding booklet & video presentation	Discussion with further evaluation occurring at postpartum home visit
State how much to feed infant	Nursing frequency and duration; feeding log; diaper	Discussion breastfeeding booklet & video	Discussion with further evaluation occurring at

	count; weights; jaundice	presentation	postpartum home visit
Demonstrate breast care & how to manage complications	Nipple soreness or damage; production issues; engorgement; blocked ducts; mastitis;	Discussion breastfeeding booklet & video presentation	Discussion with further evaluation occurring at postpartum home visit
Identify the characteristics of the healthy breastfeeding lifestyle	Mother-proper fluids/ nutrition, sleep/rest; self care; family planning; returning to work; proper pumping and storing of breast milk	Discussion breastfeeding booklet & video presentation	Discussion with further evaluation occurring at postpartum home visit

Recruitment for the pilot began immediately following Rhode Island College Institutional Review Board (IRB) approval on November 8, 2013. Prenatal interviews and educational overview, home visits, and follow-up phone contacts extended from November 2013-April 2014. The Outreach and Recruitment Phase was accomplished with the distribution of IRB approved pilot project flyers at the town libraries, the town hall, the IGA grocery store, two pizza parlors, and online on the Scituate Babies/Scituate

Health Alliance Website. Four mother-newborn dyads responded to the outreach. . The implementation process for each of these dyads is described.

The first mother-newborn dyad.

The first participant who was thirty-six weeks pregnant responded to the local recruitment flyer placed at the town library. The mother contacted the researcher by phone, and the researcher scheduled a home visit. After obtaining informed consent for both the mother and newborn (Appendix B, C), the initial interview was conducted by the researcher in the home of the mother.

The critical goal of the home visit was to create a comfortable environment for the mother and establish a therapeutic relationship between the mother and the researcher. This was achieved through verbal and non-verbal communication, active listening, validation of maternal feelings, and a non-judgmental, empathic, and calm attitude. With the permission of the mother, brief notes were taken during the interview to gather background information and record potential follow-up questions. This was chosen as a more natural, less invasive method of documenting information as compared with audio recording which was thought to possibly create discomfort and self-consciousness in the mother.

The initial interview took place in the participant's small, single story home on a rural street in Scituate, RI. The home appeared clean, but somewhat disorganized due to the preparations being made for a new baby along with the presence of another young daughter. She stated that she planned to keep the new baby in her room since they were “tight on space.” Participant one stated that she was married, and she and her husband had lived in Scituate for over ten years. She was a thirty-one year old Caucasian woman with a high school education. This was her second pregnancy. Her daughter was four years old and attended a local pre-school program two days per week. Her in-laws lived locally, but she felt that they were not comfortable with her breastfeeding. She did,

however, have one local friend who successfully nursed her twins, and was a support to her.

The first participant stated that she was excited to contact the researcher since she had a hard time nursing her daughter, and was concerned because her dentist had told her that her daughter's early cavities were due to breastfeeding at night. The teaching plan was implemented according to the procedure outlined (Table 3). After the education plan was implemented, the mother had multiple questions concerning the pumping of her milk, how to obtain a pump, and how to get her infant to take the expressed milk since her daughter would never take a bottle. The information on delaying the introduction of bottles, and the pumping and storing of breastmilk was emphasized, and the researcher explained the breast pump benefits now available through the Affordable Care Act. Questions were answered by the researcher until the participant demonstrated knowledge and comfort with all content. In addition, other resources to support breastfeeding through her insurance and WIC were discussed.

At the conclusion of the initial interview, the participant was encouraged to call the researcher with any additional questions and provided the phone number in writing. She was also asked to notify the researcher when she delivered. The prenatal interview and breastfeeding education home visit was approximately seventy-five minutes in length. Immediately after the interview, more detailed notes were recorded and shared with the faculty advisor for analysis.

The researcher was contacted by the participant after the vaginal delivery of a healthy newborn girl while the participant was still hospitalized. The postpartum home visit was scheduled for one day after discharge. The researcher was greeted at the door by the participant and her four year old daughter. The researcher knelt down to her daughter and congratulated her on being a big sister. The mother verbalized embarrassment and apologized for the untidy state of her home. Reassurance, acceptance, and a non-

judgmental attitude were demonstrated by the researcher in response. Her newborn was sleeping at the beginning of visit so assessment of mother's delivery and immediate postpartum course and breastfeeding experience was completed. Some time was also spent playing and talking with older daughter in order to establish a therapeutic relationship with the family.

Once the newborn daughter awoke, permission was requested and granted to provide an infant assessment and a breast and nursing assessment of the mother. The female infant was three days old, born by spontaneous vaginal delivery to a thirty one year old Caucasian woman who had two pregnancies and two live births. The infant's birth weight was 7 pounds 0 ounces, and her skin was pink and warm with no evidence of dehydration or jaundice. The infant's oral exam revealed no evidence of tongue or lip tie and an intact palate. The infant had a strong suck and could extend the tongue past the lip line.

The infant's mother stated that she was nursing every two hours. The mother stated that her daughter had been eliminating stool and voiding within normal limits according to the breastfeeding parameters that had been discussed with her during the prenatal breastfeeding education and the hospital discharge directions that she received at discharge. She had reddened nipples, but no damage evident. She was not engorged, which most likely indicated that her milk had not yet transitioned from colostrum to mature milk. Education was provided on this fact and that it was important to continue to frequently feed her infant (every 1.5 - 3 hours) to stimulate milk cell production. When the mother put the child to breast, the infant immediately latched properly and the mother was shown how to provide breast compression to increase colostrum flow. In addition, she was encouraged to press the infant closer to her breast to maximize deep latch.

The researcher observed the entire feeding, and then asked the mother if she had any additional questions or concerns. The mother was encouraged to call or text with any

breastfeeding questions and to discuss questions with the infant's pediatrician. The researcher also reminded the participant that she would receive follow-up phone calls. The postpartum home visit was approximately ninety minutes in duration.

Subsequent follow-up phone calls at one week, two weeks, and one month postpartum revealed a healthy exclusively breastfeeding infant with adequate weight gain. The only issue which was reported was sore nipples during the week one follow-up phone call. At that time, the mother stated that she did not have any skin breakdown, and she was instructed to hand express a small amount of breast milk and rub it into the nipples. She was also instructed to try using a lanolin cream for comfort.

This mother called on two additional occasions to request information and assistance regarding her electric breast pump. The researcher provided verbal instructions to her which resulted in successful use of the pump. In addition, the researcher discussed proper care and storage of expressed breast milk. The final three month follow-up phone call revealed that the mother continued to be exclusively breastfeeding her newborn. She also stated that the newborn was now sleeping for over eight hours per night and had more than doubled her weight since birth. Follow-up phone calls lasted approximately two to fifteen minutes in duration.

The second mother-newborn dyad.

The same protocol implemented for the first family to participate in the pilot program was initiated for the second mother-newborn dyad. The second mother responded to the local recruitment flyer, and the initial contact was made by phone. A brief explanation of the pilot program was provided, and a prenatal interview and breastfeeding education visit was scheduled for one week later at the mother's home. However, this participant went into labor before her due date and prior to the home visit

so phases two and three of the pilot program were combined with the postpartum home visit.

The participant contacted the researcher after her delivery, and the home visit was scheduled and conducted two days after her discharge. Her quaint historic cottage was in the center of one of the villages of Scituate, RI. This participant was recovering from an unplanned primary cesarean section and greeted the researcher at the door in visible pain. The researcher offered to return at another time, but the participant requested that the home visit continue. The participant's home was exceptionally clean and neat, with a beautifully bright nursery just off the living room. The home visit was adapted to accommodate the Mother's comfort level. She was first assessed for pain and revealed that she had taken her pain medication thirty minutes prior to arrival.

The researcher first explained the usual method of interview and breastfeeding education prenatally prior to the postpartum home visit and asked if the participant would like to combine phases one and two. Permission was obtained. The mother asked her husband to join the process. The informed consent for mother and newborn (Appendices B, C) was obtained and the breastfeeding education plan was implemented (Table 3).

The Affordable Care Act changes were also included to ensure knowledge of optimal and available breastfeeding support and services. Both parents stated that the information helped to reinforce what they had been taught in the hospital, and that they had no further questions. During the process of the interview, the researcher was able to model the settling of a fussy infant, and reassured the mother that this was normal infant behavior. The researcher also obtained a drink for her so that she did not need to get up, and was able to assess that her pain had lessened. The need to take her medication as directed in order to stay ahead of her pain was also emphasized.

Since the newborn was awake and showing feeding cues, the researcher then asked permission to provide an infant assessment followed by a breast and nursing

assessment. The newborn was a five day old female infant with a birth weight of 9 pounds. The mother was a thirty-five year old, college educated Caucasian woman with her first pregnancy and delivery. She stated that this was her husband's second child. Her pregnancy was uncomplicated, but resulted in a C-section due to "failure to progress." Her daughter was alert and active with a normal oral exam. The mother's breasts were full and symmetrical with no signs of nipple damage. The infant obtained a deep, sustained latch with no pain experienced by the mother. She nursed vigorously for approximately fifteen minutes.

The mother was encouraged to call or text with any breastfeeding questions or concerns. She was also instructed to always discuss questions with the infant's pediatrician. The mother was encouraged to call the researcher with any additional questions. The postpartum home visit was approximately ninety minutes in length. As with the first mother-infant dyad home visit, brief notes were taken during the visit for background information and follow-up questions, and immediately after the home visit more detailed notes were recorded. These notes were shared with the project faculty advisor.

A follow-up phone call was made when the newborn was one week of age and again at two weeks postpartum. During the first phone call, assistance was provided to direct the mother on how to minimize a forceful milk ejection reflex. A thorough assessment was completed through phone interview and clear step-by-step recommendations were made on how to successfully complete this process. The mother contacted the researcher on the following day to report continued success. The researcher also called two days later in order to ensure that the participant and her infant were tolerating the changes suggested. This mother verbalized that she was very pleased with the results and stated that nursing comfort had improved. The mother then also called a second time three days after calling the researcher to ask for suggestions to increase her

milk supply after her infant's first growth spurt. Recommendations were given to her regarding this issue which included nursing as frequently and as long as her daughter needed and the addition of hands on pumping with the website to view steps. She was encouraged to call with any additional questions or concerns.

A concurrent health issue for the mother of the second dyad occurred three weeks postpartum. At 10 pm on the infant's twenty-first day of life, the researcher received a phone call from the father. He had brought the mother to the emergency department with acute abdominal pain, and she was admitted. The father had come back home to be with his infant and did not know how to feed her. The mother had begun pumping and freezing her breast milk and the researcher instructed the father in the thawing and safe handling of her milk and the best type of bottle system to purchase in order to preserve a proper nursing latch. He was able to go to a pharmacy which was open twenty-four hours to purchase bottles so he could successfully feed his baby until his wife was discharged. The researcher called the following day to assess the family. The mother had been discharged, but stated that she would probably need gallbladder surgery in the near future.

Three days following this maternal health complication, the mother called to request information about the safety of medications and anesthesia with gallbladder surgery while breastfeeding. She was assured that evidence-based practice indicated that it is safe to pump and/or breastfeed immediately after surgery (Hale, 2012). Subsequent follow-up phone calls by the researcher included the scheduled one month postpartum phone call and an additional call after her gallbladder surgery. The three month follow-up call revealed a healthy mother/ newborn dyad who were continuing to exclusively breastfeed. All follow-up phone calls were between five and twenty minutes in duration.

The third mother-newborn dyad.

The interaction with the third mother-newborn dyad took place when the participant responded to the local recruitment flyer, and the initial contact was made by phone. The prenatal interview and breastfeeding education home visit was scheduled. As with the previous home visits, the critical goal was to create a comfortable environment for the mother and to establish a therapeutic relationship between the mother and the researcher. This was achieved through verbal and non-verbal communication, active listening, validation of maternal feelings, and a non-judgmental, empathic, and calm attitude. With the permission of the mother, brief notes were taken during the interview to gather background information and record potential follow-up questions. Additions were made to these notes immediately following the visit, and the notes were shared with the faculty advisor.

The participant appeared anxious during initial interview as demonstrated by fidgeting and her inability to establish eye contact. The researcher attempted to put her at ease by talking about living in Scituate, her beautiful home, her profession, and her nursery décor. After approximately ten minutes, she appeared more relaxed. The researcher then explained the pilot program and requested that she sign the consent forms (Appendices B, C). The prenatal interview was completed and the breastfeeding education plan (Table 3) was implemented. Breastfeeding support services provided by the Affordable Care Act were also included to ensure knowledge of optimal breastfeeding support and services. The mother stated that she did not have any questions. The participant was encouraged to call if she thought of any questions and to notify the researcher once she delivered in order to schedule a postpartum home visit. The interview and education home visit was approximately seventy minutes in duration. Brief notes were taken during the visit for background information and follow-up questions, and immediately following the home visit more detailed notes were recorded. All notes were shared with the faculty advisor.

The researcher was contacted by the husband of the participant in mother-infant dyad three to report that the participant was in labor. The postpartum home visit was scheduled for one day after discharge. The infant was a three day old female with a birth weight of 8 pounds 12 ounces. The mother was a twenty-eight year old, college-educated Caucasian woman with her first pregnancy and birth. Her husband was also present for the home visit. Both parents were engaged in the process and asked questions. The mother asked one question regarding the frequency of the newborn's feedings during her first night home. Education was provided about cluster feedings and the supply and demand rationale. The mother reported that she was given a nipple shield in the hospital, and asked if she should continue to use it. The researcher encouraged her to continue to use the shield until breast feeding was well established, and then re-evaluate with the guidance of the researcher and her pediatrician.

A breast assessment was performed with the participant's permission, but a nursing or infant assessment could not be evaluated since she had recently nursed, and the infant was sleeping. The infant remained asleep during the entire postpartum visit, but appeared pink and healthy in her bassinet. The researcher was reassured by the fact that she had been examined by her pediatrician earlier that day. The parents were assessed to be exhausted, and encouraged to take a nap while their daughter slept since she had cluster fed all night. The postpartum home visit lasted approximately sixty minutes.

Since an assessment of the baby during breastfeeding could not be completed during the visit, the researcher called the following day to assess their progress. The mother stated that the infant was still nursing every one to three hours. The mother was not experiencing any nipple pain, and the infant was voiding and eliminating stool in appropriate amounts according to the breastfeeding chart and education. The mother was encouraged to call or text with any breastfeeding questions or concerns and to discuss questions with the pediatrician.

A subsequent one week old follow-up phone call revealed a tearful, but persistent mother. She stated that the infant was "fussy and nursing frequently." The researcher praised the mother for her efforts and determination. The mother was encouraged to keep track of the infant's feeds and outputs and to nap anytime her baby was sleeping. She was instructed to call the pediatrician with any concerns, and encouraged to call the researcher as needed for support. The mother reported that her newborn had a pediatrician visit the previous day, and her weight had increased. Both the two week and the one month post-partum follow-up calls revealed a more confident and happy mother. The mother called the researcher on two other occasions for advice on nipple care and weaning off of the nipple shield. The researcher provided information and directed her to call again if any difficulty arose.

The final three month follow-up phone revealed the continuation of exclusive breastfeeding. The mother reported that her milk supply seemed to be decreasing. The researcher instructed the mother in power pumping and hands on pumping to stimulate milk production. All follow-up phone calls lasted between fifteen and twenty minutes in duration.

The fourth mother-newborn dyad.

The mother in the fourth mother-newborn dyad stated that she saw the recruitment flyer on the day before she went into labor so was not able to schedule the prenatal interview and prenatal breastfeeding education. She contacted the researcher one day after her discharge home to learn more about the program and to get assistance with a painful latch with nursing. A brief explanation of the pilot program was delivered and the researcher was able to schedule a home visit immediately after the phone call. The researcher was greeted at the door by both parents who were very excited and appreciative of the quick response. The researcher complimented their unique, comfortable and very organized home which was located in a rural section of Scituate,

RI. She also noted how rested they both appeared. They stated that they had slept better at home than they had in the hospital and that their infant had slept over two hours between night feedings.

The researcher explained the program's usual method of interview and breastfeeding education prenatally and asked if the participants would like to combine phases one and two. Permission was obtained. The informed consents for mother and newborn (Appendices B, C) were signed. The prenatal interview and breastfeeding education plan were adapted for the postpartum period, and both parents stated that the information helped to reinforce the education they received in the hospital setting as well as what they had read. The Affordable Care Act changes were also included to ensure knowledge of optimal and available breastfeeding support and services.

The participant was a twenty-seven year old high-school educated, Caucasian woman who delivered her first child, a healthy 6 pound 3ounce baby boy, vaginally three days prior. According to this mother, her pregnancy, labor, and delivery were unremarkable. Her postpartum course was also uncomplicated. This mother stated that her infant experienced mild hypothermia in the first 36 hours of life, and his initial bath and their discharge was slightly delayed due to this. She stated that his temperature has been stable since discharge home. This mother was concerned about the pain she was experiencing with her infant's latch and the damage she had to her nipples.

The infant was observed to be pink and healthy, asleep in his infant chair. The mother woke the infant since it had been almost three hours since he last ate. An oral exam revealed no evidence of tongue or lip tie. The infant had a strong suck and intact palate and could extend the tongue past the lip line. His skin was warm to touch with no evidence of jaundice or dehydration. His parents stated that he has been eliminating stool and urinating with each diaper change and nursing every two to three hours. They were

setting their alarm for a maximum of three hours between feeding during the night. A pediatrician appointment was scheduled for the following afternoon.

Examination of the mother revealed symmetrical, full breasts with no evidence of scarring or abnormalities. Both nipples were short, but not flat or inverted. Her left nipple was reddened, but intact. Her right nipple was reddened and cracked with evidence of bleeding. Multiple latch attempts were shallow, painful, and not sustained according to mother. A suggestion was made to introduce a nipple shield to improve latch and provide nipple protection and healing. The infant immediately latched with a sustained suck, and the mother experienced decreased pain. The mother was encouraged to pull the infant closer, and the infant obtained a deeper latch. A recommendation was made to continue to use the nipple shield on each breast for a minimum of two weeks to promote healing, facilitate a proper latch, and obtain a full milk supply.

A plan was made with the parents to discuss the recommendations at the pediatrician appointment scheduled for the following day, and to call or text the researcher with any breastfeeding questions. A follow-up phone call was made two days after the home visit, and the infant and mother were doing well. The mother stated that the pediatrician was pleased with the infant assessment and weight, but was surprised that she was only breastfeeding. She stated that this response "made me think that she wanted me to do formula too, like I was doing something wrong." She also revealed that the pediatrician gave her some formula as a gift. The researcher assured her that she was doing a great job and should continue to exclusively breastfeed, unless there was a medically indication to supplement.

The researcher received a phone call from this mother at day six postpartum. She stated that she had started pumping her breasts due to severe engorgement and discomfort, even after her infant son nursed both sides. When questioned about her symptoms, she denied signs of mastitis or blocked milk ducts. The researcher instructed

her to apply cold compresses to her breasts using a barrier to protect her skin and continue to take the prescribed ibuprofen to decrease inflammation. The researcher also suggested that she decrease her pumping since this stimulated additional milk production. Signs and symptoms of mastitis were reviewed, and the mother was encouraged to call her obstetrician with any breast concerns. The researcher discussed overproduction of breast milk, but stated that it was too early to determine this yet since her full supply would not be available until two weeks postpartum. The mother was directed to store her pumped milk in her freezer to ensure adequate supply for her infant.

The two week follow-up phone call revealed a healthy exclusively breastfed infant who had already surpassed his birth weight (from 6 pounds 3 ounces to 6 pounds 13 ounces), and the one month follow-up phone call revealed a healthy mother/newborn dyad who continued to exclusively breastfeed using the nipple shield. The mother stated that her son was gaining approximately one ounce per day, was nursing every two to four hours, and was usually sleeping close to six hours at night. She did not have any further questions, but stated that she knew that she could call if any arose. The final three month follow-up phone call revealed continuation of exclusive breastfeeding of her newborn. The mother also voiced her gratitude for the researcher support, and stated that “she could not have done it without your help.” All of the follow-up calls lasted from five to fifteen minutes.

Ethical Considerations

This lactation support program was a pilot project. All participants voluntarily took part in the program and could choose to withdraw at any time without consequence. All information gathered was strictly confidential, anonymous, and was not shared with anyone other than the faculty advisor. All data was kept in a locked private area not accessible by others. No negative consequences were identified which resulted from participation. Referral to

mental health and other support services for mothers who had additional health needs were planned for, but not required.

The town of Scituate does not have a racially or ethnically diverse population which contributed to the program participants all being White. Minority participants were not excluded, but the recruitment information and resources were in English and no participants of diverse backgrounds contacted the researcher to participate. The diversity of the sample was limited by the town of Scituate's population and makeup. Potential ethical concerns arose since this proposal targets mothers and infants, both considered vulnerable populations. It is important to note however, that this community-based lactation program proposal was designed to provide additional information, education and support, not intervention or diagnosis, and was not intended to be a substitute for the participants' own health care provider or available support services. All of the materials provided were intended to improve the health and well-being of the mother and infant.

Institutional Review Board

Institutional Review Board approval was obtained from Rhode Island College on November 8, 2013. The Scituate Health Alliance also approved the pilot project. The protocol was implemented as approved.

Evaluation

The Community-Based Lactation Support Program was evaluated for effectiveness through the project participation rates, confidence in breastfeeding, and the sustained and exclusive breastfeeding rates of the participants at three days, one week, two weeks, one month and three months postpartum. All mothers delivered healthy, full term singletons and were discharged from the hospital without complications. All four participants continued breastfeeding exclusively as reported through the three month phone contact.

The pilot data were analyzed immediately following the visits. Additionally, they were analyzed as each mother-infant dyad completed the entire process. A comprehensive evaluation of the notes from the prenatal interaction, the home visit, and the follow-up phone contacts was conducted by the researcher in collaboration with the faculty advisor. Researcher notes were assessed for commonalities and differences among the four mother-infant dyads. Enhancers of and barriers to sustained and exclusive breastfeeding were noted as well as procedures that were missing that may have added to the strength of the intervention.

Ultimately, the strength of this program will be measured when it is expanded to the town of Scituate and the state of Rhode Island. Measurement of long term outcomes will be conducted following expansion of the program and will be measured by CDC and RIDOH breastfeeding data.

Results

Four mothers were recruited for participation in a community-based breastfeeding education program. All delivered healthy, full term singletons and were discharged from the hospital without complications. Three of the participants experienced vaginal births, and one required a cesarean section. The initial interview, assessment, and education plan were altered for two of the participants. The prenatal interview was combined with the postnatal home visit due to unexpected early deliveries. One mother delivered prior to the meeting date and the other contacted the researcher shortly after delivery.

Each mother was privately interviewed in their home, and each participated in the breastfeeding education program. One father was present for the postpartum home visit. The mothers underwent breast exams, and a knowledge and nursing assessment. Each infant had a full physical exam and a latch assessment. After the postpartum home visit, the researcher provided follow-up phone assessments at one week, two weeks, one month, and three months.

The participants were encouraged to phone or text anytime with any questions or concerns and the mothers and one father contacted the researcher on multiple occasions with issues related to breastfeeding. The accessibility of the researcher by phone proved beneficial on numerous occasions, especially when a participant was experiencing a health issue, nursing difficulty, or was lacking confidence in her ability. In all of these cases, breastfeeding success was at risk without the proper support.

All four mothers experienced an increase in breastfeeding confidence and knowledge. Two of the four mothers were at high risk for breastfeeding cessation without intervention due to a medical complication, nipple skin breakdown and engorgement, and a pediatrician providing discouraging information contrary to evidence-based practice. All four dyads completed the pilot program, and continued to exclusively breastfeed at the end of the three month postpartum period. This 100% exclusive breastfeeding rate is

significantly above the Rhode Island rate of 41.6% as well as above the national rate of 37.7%.

Summary and Conclusions

A total of four mother-infant dyads were recruited for a community-based lactation support pilot program in Scituate, RI during the time period of November 2012 through April 2014. All participants were residents of the town of Scituate, RI and had planned to breastfeed. They all delivered healthy, full term singletons and were discharged from the hospital without complications. Three of the participants experienced vaginal births, and one required a cesarean section.

Each mother was privately interviewed in her home and participated in the breastfeeding education program. After the postpartum home visit, the researcher provided follow-up phone assessments at one week, two weeks, one month, and three months. The mothers and one father contacted the researcher on multiple occasions with issues related to breastfeeding, and the accessibility of the researcher by phone proved beneficial on numerous occasions, supporting breastfeeding success which would be at risk without the proper support. All four mothers completed the pilot program, and continued to exclusively breastfeed at the end of the three month postpartum period.

Limitations

Limitations of the pilot program include lack of ethnic diversity which was predictable due to the homogeneous population of the town of Scituate. Other limitations were the small sample size and the short period of time that the mothers were followed after delivery. These factors were due to the restrictive time frame of the pilot program, limited available resources, and the unpredictability of the pregnancy and birth trajectory. A further limitation of this pilot was that only one home visit was planned. At least one participant in particular would have benefited from a second home visit when she needed help using her electric breast pump, but the IRB protocol required that there was no deviation from the approved proposal. The researcher was able to talk her through the

problem over the phone, but a home visit would have been more effective and confidence building.

The pilot provided valuable lessons for expansion of the community-based lactation program. The importance of having appropriately credentialed providers was one lesson. It is critical to ensure that lactation teaching and support offered in the community setting is consistent and evidence-based. An IBCLC or certified lactation consult with extensive newborn breastfeeding experience is essential to the quality, safety, and success of a program. Home lactation visits are more costly service to provide, but are highly effective and can be combined with community group support to counteract the expense.

A tool that would have been beneficial for future home visits is using a recording device for interviews and assessments rather than notes in order to provide more fluid interactions and concise record keeping. Taking notes during the visit proved to be a distraction and interrupted the exchange and experience of presence.

Other tools which would have been useful for pilot program, but had not been planned were: a feeding/elimination log for families to utilize and build confidence; samples of lanolin cream, nursing pads, and nipple shields; and a hand breast pump for engorgement or latch issues. The follow-up phone interview questions were intended to assess whether the mother was successfully breastfeeding exclusively, but did not assess some other information that would have added to the pilot evaluation. Questions regarding: infant weight; feeding and elimination frequency; breast/nipple comfort; overall health of the mother-infant dyad; and physician recommendations would also have been beneficial. Extending the program's telephonic follow-up to a minimum of six months postpartum and one year postpartum would enable the researcher to collect and compare the participant breastfeeding rates to the state and national statistics.

The prenatal interviews and teaching can also be accomplished in a group setting, utilizing the “Centering Pregnancy” model. Health policy which supports reimbursement for nurse home visits and promotes investment in the health of mothers and children is also important and would strengthen the infrastructure available to support sustained breastfeeding according to global, national, and state goals.

Collaboration between maternity nurses and obstetric, pediatric, and family practices would increase the consistency of breastfeeding messages and confidence development. Developing organizational policies for automatic lactation referrals upon discharge would also ensure immediate and appropriate follow-up support, with direct communication after the consult to optimize the outcomes and potentially expand the knowledge base of the referring providers. The use of technology including laptops, tablets, smart phones, and breastfeeding applications would further assist teaching, support, and confidence- building.

In conclusion, it is evident that this community-based lactation support program increased the breastfeeding mother's knowledge, confidence, and ability and facilitated a positive breastfeeding experience. This small pilot study demonstrated the effectiveness of immediate and continued home and community-based lactation support on sustained and exclusive breastfeeding success. This is an evidence-based practice that should be implemented in every community to increase the sustained and exclusive breastfeeding rates in order to meet the state, national, and global breastfeeding goals, as well as to improve overall population health.

Recommendations and Implications for Practice

Practicing as an advanced public health nurse and IBCLC in the community setting provided the opportunity to impact upon breastfeeding rates through individualized assessment, teaching, and support. Research evidence has overwhelmingly demonstrated the maternal and infant benefits associated with breastfeeding. Furthermore, evidence supports the need for prenatal education, immediate and consistent postpartum teaching, and assistance in the clinical setting, and then continued and close support and follow-up after discharge. Research has concluded that a community-based lactation support program can be a highly effective method to provide this essential close follow-up utilizing a lactation consultant in concert with peer support from other nursing mothers. Ideally, a private home visit one or two days after discharge would be the most beneficial for offering guidance, support, and confidence building, followed by continued support through a community-based peer support program under the guidance of a lactation consultant.

Additional nursing research demonstrating the effectiveness of immediate home visits by a lactation consultant and continued community-based lactation support on the sustained and exclusive breastfeeding rates is needed to reinforce the need and justify the cost. Ideally, every pediatrician should also have lactation support available in their practice and their own breastfeeding knowledge should be increased to meet the needs of the breastfeeding dyad. The additional education in evidence-based lactation and breastfeeding content by all healthcare providers is required in order to increase their knowledge base and ensure consistency of messaging. The Affordable Care Act has paved the way for additional breastfeeding support coverage from insurance providers, but additional policy provisions would ensure that home visits by an IBCLC would be a covered service.

References

- Aksu, H., Kuçuk, M., & Duzgun, G. (2011). The effect of postnatal breastfeeding education/support offered at home 3 days after delivery on breastfeeding duration and knowledge: A randomized trial. *Journal of Maternal Fetal Neonatal Medicine*. 24(2), 354-361.
- American Academy of Pediatrics Section on Breastfeeding (2005). Breastfeeding and the use of human milk. *Pediatrics*. 115(2), 496.
- American Public Health Association (2013). An Update to A Call to Action to Support Breastfeeding: A Fundamental Public Health Issue. Retrieved from: <http://www.apha.org/advocacy/policy/policysearch>
- Anderson, A., Damio, G., Young, S., Chapman, D., & Perez-Escamilla R. (2005). A randomized trial assessing the efficacy of peer counseling on exclusive breastfeeding in a predominantly Latina low-income community. *Archives of Pediatric Adolescent Medicine* 159(9), 836-841.
- Apple, Rima D. (1987). *Mothers and Medicine. A Social History of Infant Feeding, 1890–1950*. Wisconsin: University of Wisconsin Press.
- Baby Friendly USA. (2013). Retrieved from: <http://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria>
- Bartick M, and Reinhold A.(2010). The burden of suboptimal breastfeeding in the United States: a pediatric cost analysis. *Pediatrics* 125(5), 1048-1056.

- Bonuck K., Trombly M., Freeman K., & McKee D (2005). Randomized, controlled trial of prenatal and postnatal lactation consultant intervention on duration and intensity of breastfeeding up to 12 months. *Pediatrics*.116(6), 1413-1426.
- Breastfeeding USA (2013). Retrieved from: <http://www.breastfeedingusa.org/support>
- Breastfeeding Project (2013). Retrieved from:
<http://www.breastfeedingproject.org/support>
- Cape Cod Hospital (2013). Retrieved from: <http://www.capecodhealth.org/services/family-birthplace>
- CDC (2013). Breastfeeding Report Card, United States: Outcome Indicators. Retrieved from: <http://www.cdc.gov/breastfeeding/data/reportcard/reportcard2013>
- Chapman D.J, Morel K, Anderson A.K, Damio G, & Pérez-Escamilla, R. (2010). Breastfeeding peer counseling: from efficacy through scale-up. *Journal of Human Lactation* 26(3), 314-326.
- Census. (2010). Retrieved from <http://2010.census.gov>
- Citydata. (2012). <http://www.city-data.com/city/Scituate-Rhode-Island.html#ixzz1sMpxN9vQ>
- Ervin, N. E. (2002). *Advanced community health nursing practice*. Upper Saddle River: Pearson Education.
- Gagnona., Dougherty G., Jimenez V., & Leduc N. (2002). Randomized trial of postpartum care after hospital discharge. *Pediatrics* 109(6), 1074-1080.
- Green, L.W. & Ottoson, J.M.(1999). *Community and Population Health 8th edition* New York: McGraw Hill.
- Green, L.W. & Kreuter, M.W. (2005) *Health Program Planning: An Educational and Ecological Approach 4th edition*. New York: McGraw-Hill.

- Hallmark health (2013) retrieved from: www.hallmarkhealth.org/melrose-wakefield-hospital
- Hartford Hospital (2013). Retrieved from:
<http://www.harthosp.org/women/PregnancyChildbirthServices/Breastfeeding/default.aspx?cHT=breastfeeding>
- Healthy Babies (2013). Retrieved from: <http://www.healthybabieshappymoms.com>
- Healthy People 2020 (2010). U.S. Department of Health and Human Services. Retrieved from: <http://www.healthypeople.gov/2020/topicsobjectives2020>
- Hale, T (2012). *Medications and Mothers' Milk*. Nashville: Hale Publishing.
- Kent Hospital (2013). Retrieved from: <http://www.kenthospital.org>
- Kidscount (2013). Retrieved from: <http://www.rikidscount.org>
- KidsNet (2013). Retrieved from:
<http://www.health.ri.gov/publications/databooks/2010Kidsnet.pdf>
- KU Work Group for Community Health and Development. (2014). Chapter 2, Section 2: Precede/Proceed. Lawrence, KS: University of Kansas. Retrieved from the Community Tool Box: <http://ctb.ku.edu/en/table-contents/overview/chapter-2-other-models-promoting-community-health-and-development/section-2>
- La Leche (2013). Retrieved from: <http://www.llli.org/resources/providers>
- Lawrence, R. (2005). *Breastfeeding Guide for Medical Profession 6th edition*. New York: Mosby, Inc.
- Lock, A. & Chan, L. (2013). Maternal breastfeeding self-efficacy and the breastfeeding behaviors of newborns in the practice of exclusive breastfeeding. *Journal of Obstetrics, Gynecologic, and Neonatal Nursing*. 42(6), 672-684.

- McNeil, D. (2012) Getting more than they realized they needed: a qualitative study of women's experience of group prenatal care. *BMC Pregnancy and Childbirth* 12(17). Retrieved from <http://www.biomedcentral.com/1471-2393/12/17>
- Morrow, A., Guerrero, M., Shults J. & Calva, J (1999). Efficacy of home-based peer counseling to promote exclusive breastfeeding: a randomized controlled trial. *Lancet* **353(9160)**, 1226-1231.
- Oakley, L. & Henderson, J. (2014). The role of support and other factors in early breastfeeding cessation: an analysis of data from a maternity survey in England. *BMC Pregnancy and Childbirth* 14(88). Retrieved from: <http://www.biomedcentral.com/content/pdf/1471-2393-14-88>
- Oregon Providence (2013). Retrieved from: www.oregon.providence.org
- Pugh, L., Milligan, R., Frink, K., Spatz, D., & Bronner, S (2002). Breastfeeding duration, costs, and benefits of a support program for low-income breastfeeding women. *Birth* 29(2), 95-100.
- Renfrew, M., McCormick, F., Wade, A., Quinn, B., & Dowswell, T. (2012). Support for healthy breastfeeding mothers with healthy term babies. *Cochrane Database Systematic Review* 16 (5). Retrieved from: <http://www.ncbi.nlm.nih.gov/pubmed/22592675>
- RI Department of Health (2013). Retrieved from: <http://www.health.ri.gov/breastfeeding>
- RI Department of Health (2013). Retrieved from: <http://www.health.ri.gov/programs/newbornscreeningandfollowup>
- RI Moms (2013). Retrieved from <http://www.rinemoms.com>
- Schiebinger, L. (1993). *Nature's Body. Gender in the Making of Modern Science*. Boston: Beacon Press.
- Schindler Rising, S. (1998). Centering Pregnancy: An interdisciplinary model of empowerment. *Journal of Nurse-Midwifery* 43(1), 46-54.

Scituate (2013). Retrieved from: <http://www.scituateri.org/>

Scituate Health (2013). Retrieved from <http://www.scituatehealthri.org/history-mission>

Slavit, W. (2009). *Investing in Workplace Breastfeeding Programs and Policies: A Employee's Toolkit*. Washington, DC: Center for Prevention and Health Services, National Business Group on Health

Stevens, E., Patrick, T., Pickler, R.. (2009). A History of infant feeding. *Journal of Perinatal Education*.18(2), 32-39.

The Joint Commission (2013). Retrieved from:

http://www.jointcommission.org/specifications_manual_joint_commission_national_quality_core_measures

U.S. Department of Health and Human Services (2011). *The Surgeon General's Call to Action to Support Breastfeeding*. Washington, DC: U.S. Department of Health and Human Services, Office of the Surgeon General.

UNICEF (2013). Retrieved from: <http://www.unicef.org/infobycountry/usa>

United States Breastfeeding Committee (2010). *Workplace Accommodations to Support and Protect Breastfeeding*. Washington: United States Breastfeeding Committee. Retrieved from:

www.usbreastfeeding.org/Portals/0/Publications/Workplace

United States Breastfeeding Committee (2011). *Statement on Lactation Accommodations in the Workplace*. Washington, DC: United States Breastfeeding Committee.

United States Breastfeeding Committee (2013). *Model Policy: Payer Coverage of Breastfeeding Support and Counseling Services, Pumps and Supplies*. Washington, DC: United States Breastfeeding Committee and National Breastfeeding Center.

USDA Food and Nutrition Service (2013). Retrieved from

<http://www.fns.usda.gov/wic/fundingandprogramdata/FY2011>

Wolf, J. (2003). Low breastfeeding rates and public health in the united states.

American Journal of Public Health 93(12), 2000-2010.

Women & Infants Hospital (2013). Retrieved from: <http://www.womenandinfants.org>

World Health Organization (2013). Breastfeeding. Retrieved from:

http://www.who.int/maternal_child_adolescent/news_events/events/2013/world_breastfeeding

Yalom, M. (1997). *History of the Breast*. New York: Alfred Knopf.

Zipmilk (2014) Retrieved 01/15/2014 from <http://www.zipmilk.org>

Appendix A
SHA LETTER OF AGREEMENT

Rhode Island College
Institutional Research Board
600 Mount Pleasant Avenue
Providence, RI 02908

October 2, 2013

To whom it may concern,

This letter is provided as agreement to serve as a collaborating agency on Susan Bryant's pilot project titled "*Development of a Community Based Lactation Support Program*" which will involve project promotion and recruitment, informational meeting, prenatal interview and education, post-partum home visit and follow up phone calls. The student will be supported to use the Scituate Health Alliance at 1003 Danielson Pike for a site for participants.

Our organization is completely supportive of this opportunity to support Ms. Bryant's work in whatever way we can and look forward to the project outcomes.

Sincerely,

John Marchant
President, Scituate Health Alliance

Appendix B
INFORMATIONAL LETTER
Rhode Island College

Community Based Lactation Support Program

You are invited to participate in a project for community based lactation support in the town of Scituate, RI. You have been selected because you are a resident of Scituate, RI and are currently pregnant, or recently delivered. Please read this informational letter and feel free to ask any questions prior to or during your participation in this project.

Background Information

This pilot project and community lactation support program will be conducted by a Maternal/Child RN, who is also an IBCLC (International Board Certified Lactation Consultant). The project will consist of four components. (1) Recruitment of project participants, (2) Prior to delivery, an introduction to the program and a breastfeeding overview will be provided in the participant's home or the Scituate Health Alliance (SHA) office. (3) After delivery, a postpartum home visit will be provided at one and two days post discharge. (4) Follow-up phone calls will be made at one week, two weeks, one month and three months after delivery. The goal of this program is to increase breastfeeding success through education and immediate community-based support.

Risks and Benefits

Your participation is voluntary. There are no foreseeable risks to participation in this project. The benefits to the participant are an increase in breastfeeding knowledge and immediate breastfeeding support.

Confidentiality

The records from this project will be kept private and contained in a locked file. all data will be destroyed immediately after the project has been completed.

Contact Information

Please feel free to contact Susan Bryant, RN IBCLC at sbryant@ric.edu/cell phone 401-451-0228, or Joanne Costello, RN PhD at jcostello@ric.edu with any questions or concerns you may have now or any time in the future.

Thank you in advance for your participation.

Appendix C
CONSENT OF MOTHER

PERMISSION DOCUMENT
Rhode Island College

Community Based Lactation Support Program

Dear Participant:

We would like to ask permission for you to participate in the pilot project described below.

Joanne Costello, PhD, RN, a professor at Rhode Island College, and her MSN student Susan Bryant, BSN, RN are conducting this pilot project.

Description of the project

The purpose of this pilot project is to develop and implement a lactation support program in the town of Scituate, RI, in order to increase the breastfeeding rates through individual support, education, and empowerment, in the home and community. This program will be implemented by Susan Bryant, a Maternal/Child RN, who is also an International Board Certified Lactation Consultant (IBCLC).

What will be done

If you decide to participate in this pilot project, you will be asked to do the following things:

- Participate in an Informational Meeting which will include a Prenatal (before birth) Interview and individualized Breastfeeding Education (45-75 minutes) (The above will be conducted at the Scituate Health Alliance Office or at your home, if preferred.)
- Participate in a phone contact one week before and on your due date to answer questions, provide support, and remind you to contact the nurse after delivery (5-15 minutes)
- Agree to contact the pilot program nurse to request a home visit 1-3 days after delivery (5 minutes)
- Participate in a Postpartum Home Visit – one to three days after discharge from the hospital (45-75 minutes). During the home visit, the nurse investigator will provide information and education and answer any questions you have about breastfeeding. The physical exam will consist of visual inspection of the participant's breasts and infant sucking. Demonstration of proper technique will be done through the use of a simulation breast model.
- Participate in Follow-up Interview by phone - at one week, two weeks, one month and three months after delivery (5-15 minutes)

Risks or discomfort

There are no risks associated with this project.

Benefits of this study

A positive breastfeeding experience for you and your infant is the potential benefit for participating in the pilot project.

Confidentiality

The records of this pilot project will be kept private. In any sort of report that might be published, the researcher will not include any information that will make it possible to identify your infant. Research records will be kept in a secured file, and access will be limited to the

Appendix D
CONSENT FOR INFANT

PERMISSION DOCUMENT
Rhode Island College

Community Based Lactation Support Program

Dear parent:

We would like to ask permission for your infant to participate in the pilot project described below. Both parents/guardians must give their permission unless one parent is deceased, unknown, incompetent, or not reasonably available, or when only one parent has legal responsibility for the care and custody of the infant. Please read this document and ask any questions you may have before deciding whether to permit your infant to participate in this study.

Your infant will be involved in this pilot project since you will be breastfeeding him or her.

Joanne Costello, PhD, RN, a professor at Rhode Island College, and her MSN student Susan Bryant, BSN, RN are conducting this pilot project.

Description of the project

The purpose of this pilot project is to develop and implement a lactation support program in the town of Scituate, RI, in order to increase the breastfeeding rates through individual support, education, and empowerment, in the home and community. This program will be implemented by Susan Bryant, a Maternal/Child RN, who is also an International Board Certified Lactation Consultant (IBCLC).

What will be done

If you allow your infant to participate in this pilot project, you will be asked to do the following things:

- Participate in an Informational Meeting which will include a Prenatal (before birth) Interview and individualized Breastfeeding Education (45-75 minutes) (The above will be conducted at the Scituate Health Alliance Office or at your home, if preferred.)
- Participate in a phone contact one week before and on your due date to answer questions, provide support, and remind you to contact the nurse after delivery (5-15 minutes)
- Agree to contact the pilot program nurse to request a home visit 1-3 days after delivery (5 minutes)
- Participate in a Postpartum Home Visit – one to three days after discharge from the hospital (45-75 minutes)
- Participate in Follow-up Interview by phone - at one week, two weeks, one month and three months after delivery (5-15 minutes)

Risks or discomfort

There are no risks associated with this project.

Benefits of this study

A positive breastfeeding experience for you and your infant is the potential benefit for participating in the pilot project.

Confidentiality

The records of this pilot project will be kept private. In any sort of report that might be published, the researcher will not include any information that will make it possible to identify your infant. Research records will be kept in a secured file, and access will be limited to the researcher. If there are problems with the study, the research records may be viewed by Rhode Island College review board responsible for protecting human participants and other government agencies that protect human participants in research. All data will be kept for a minimum of three years, after which it will be destroyed.

Voluntary participation

The decision to take part in this pilot project is up to you. You may choose not to participate or may change your mind at any time with no negative consequences.

Contacts and Questions

If you have any questions about the study, you may contact The researcher conducting this study is Susan Bryant, RN, with her professor Joanne Costello, PhD. You may ask any questions you have now. If you have any questions later, you may contact them at sbryant@ric.edu, or jcostello@ric.edu.

If you think you or your infant were treated unfairly, or would like to talk to someone other than the project administrators about your rights or safety as a project participant, please contact Christine Marco, Chair of the Rhode Island College Institutional Review Board at IRB@ric.edu, or by phone at 401-456-8598, or by writing to Christine Marco, Chair IRB; c/o Department of Psychology; Horace Mann Hall 311; Rhode Island College; 600 Mount Pleasant Avenue; Providence RI 02908.

You will be given a copy of this permission form to keep.

Permission Statement

By signing below I/we confirm that I/we understand the information and agree to give permission for my/our infant to participate in this pilot project. Both parents/guardians must give their permission unless one parent is deceased, unknown, incompetent, or not reasonably available, or when only one parent has legal responsibility for the care and custody of the child. I/we are over 18 years of age, and the parent of the infant named below.

I have been informed that there will be **no audio-taping, video-taping, or photography**.

Infant's name: _____

1. _____
Print name Signature Date

2. _____
Print name Signature Date

Name of person obtaining permission: _____

Appendix E
GUIDELINES FOR COMMUNITY BASED LACTATION PROGRAM

Prenatal Introduction & Interview:

1. Introduction to project
2. Explore expectations of participant and researcher conducting project
3. Explore participant's breastfeeding goals
4. Explore participant's breastfeeding knowledge and or experience
5. Explore family/friends who have breastfed
6. Explore comfort level with breastfeeding
7. Explore support system in place
8. Assess medical and health history
9. Assess pregnancy course
10. Assess breast surgery/issues
11. Provide breastfeeding education

Postpartum Breastfeeding Home Visit:

Interview:

1. Discuss delivery course/complications
2. Discuss hospital experiences with breastfeeding/Information obtained
3. Inquire about first night home
4. Inquire about overall health of participant and her infant
5. How is participant feeling about breastfeeding now
6. Encourage participant to call researcher with any breastfeeding questions

Exam:

1. Oral exam of infant (palate, tongue, frenulum, lips, suck reflex)
2. Breast/nipple exam
3. Assist with proper and comfortable positioning of participant
4. Assist with proper positioning of infant
5. Assist with proper latch of infant
6. Examine alternative positioning if necessary
7. Review hand expression & breast compression
8. Review signs adequate intake/hydration
9. Review feeding cues/cue based feedings
10. Demonstrate infant calming and rousing techniques

Follow-up Phone Interview:

1. Phone calls scheduled for predetermined time (convenience of participant)
2. Phone call intervals of 1 week, 2 week, 1 month, & 3 months postpartum
3. Inquire about overall health of participant and her infant (include weight of infant)
4. How is participant feeling about breastfeeding currently
5. How often is participant nursing and for how long
6. Exclusively breastfeeding or supplementing
7. Any complications or concerns
8. Pediatrician recommendations
9. Any breastfeeding questions or concerns (encourage to phone if any arise)
10. Need for additional support or services